

**ABSTRACT OF THE DISCLOSURE**

- A method and system of memory management incorporates multiple banks of memory devices organized into independent channels wherein each bank of memory devices contains duplicate data. A tree memory controller controls data read and write accesses to each of the banks in each of the
- 5 channels. A bank queue for each bank in each channel keeps track of bank availability. When read or write requests are received at the tree memory controller, the controller checks the availability of each bank in a channel, identifies a first available bank, and executes the read request from the first
- 10 available bank. In response to a write request, the controller blocks all read requests once it has confirmed that data to be written is complete for the selected memory word length. As soon as each bank queue for read requests is empty, the controller initiates burst mode transfer of the completed data word to all banks concurrently.